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EXPERIMENTAL MEASLES IN THE MONKEY: A PRELIMINARY NOTE.

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So far as we are aware the only attempts at inoculating monkeys with measles are those of Grunbaum. This worker, in a paper in the British Medical Journal (Apr. 9, 1904), reported various attempts at infecting two chimpanzees, including the injection of blood taken direct from the median basilic vein of measles cases. He considered that they were not only without effect, but that they "may even have conferred immunity rather than conveyed infection."

In view of the great importance of the subject, and of the apparent insusceptibility of other animals, it appeared to us highly desirable to put the question of the receptivity of monkeys to the infection of measles to further test.

We began work a year ago and now desire to report some results which we believe demonstrate that the rhesus monkey is capable of being infected by the blood drawn from the general circulation of a case of measles and that a monkey so infected may show a definite febrile reaction resembling the course of the temperature in some types of measles in the human subject, with or without a generalized exanthem.

Our first experiment was performed June 8, 1910, with some blood obtained from a case of measles at the Willard Parker Hospital, New York. Two rhesus monkeys were inoculated; in each a slight rise in temperature was noted on the eleventh day, the significance of which, however, we did not appreciate at that time.

Because of the lack of material, further work along this line had to be deferred until a more favorable season. The prevalence of an epidemic of the disease this spring in the District of Columbia brought with it the opportunity for which we had waited.

Our second attempt was made on April 25, 1911, with a result similar to our first.

On April 28, 1911, we made a third attempt, inoculating three rhesus monkeys (Nos. 7, 40, and 12). Again, so far as any temperature reaction is concerned, we obtained results essentially like those in both our previous experiments.

In the case of rhesus No. 12, however, besides a slight rise in the temperature on the tenth day after inoculation we noticed the appearance of a sparse papular eruption on the face, brows, and chin, with a diffuse erythema of the brows and lids. Four days later the eruption perceptibly faded; at the same time a fine, branny, scaling was noted at the site of the fading lesions.

Encouraged by this result, we proceeded to our fourth attempt. On May 16, 1911, with some blood from a fourth case, we inoculated monkeys Nos. 6 and 8. At the same time we reinoculated monkey No. 12, all evidence of any reaction from his previous inoculation having disappeared, with a view to testing his immunity and thus obtaining light on the nature of the reaction.

Ten days after inoculation monkey No. 6 showed a moderate rise in temperature. At the same time he was noted as having a hacking cough. A sparse eruption of irregular coppery tinted patches made its appearance at the same time on chest and abdomen. The patches showed a branny scaling. Unfortunately, during the operation of bleeding this animal was accidently killed, so that further observations on the animal could not be made.

Monkey No. 8 developed a well-marked febrile reaction eight days after inoculation. The temperature remained elevated for four days, then dropped abruptly to its normal range. Ten days after inoculation this animal developed a well-marked maculo-papular eruption which in two days became generalized, extending over the chest, abdomen, back, and limbs. On the fifth day after its appearance the eruption began to fade and in two days more only slight stains at the site of the lesions were discernible. Desquamation was not noted except on the scalp and temple.

In contrast to the beginning reaction noted in monkey No. 6 and to the marked and striking reaction in monkey No. 8 we have to record the absence of any reaction in monkey No. 12, whose temperature since the day of his reinoculation—a period of 20 days—has oscillated within the normal range for this animal.

In order to obtain further light as to the nature of the reaction observed particularly in our monkeys Nos. 6 and 8 we aspirated blood from the heart of both these animals and used it for the inoculation of four fresh rhesus monkeys, two with blood from No. 6 and two with blood from No. 8. After a definite incubation period one animal of each pair developed a well-defined febrile reaction with a slight exanthem; the other one of each pair, after a similar incubation period, showed slight rises of temperature but no eruption.

It should here be noted that the blood from each human case was invariably tested for sterility by planting in a glucose-broth fermentation tube, as was also the monkey blood used for passage. In no instance did we obtain any growth.

From a consideration of the foregoing we believe we are justified in concluding that we have demonstrated the susceptibility of the rhesus monkey to inoculation with the blood of human measles drawn from the general circulation early in the eruptive stage.

Full details of our work will be given in a paper now in preparation.

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